CLAIMS

1. A wave-power unit for the production of electric power comprising a floating body and rotating electric generator mechanically connected to the floating body, **characterized in that** a mechanical movement transmitting means is arranged for transmission of vertical movements of the floating body to rotary movements of the generator rotor.

2. A wave-power unit as claimed in claim 1 **characterized in that** at least the stator of the generator is enclosed in a housing anchored in the sea/lake bed.

3. A wave-power unit as claimed in claim 2, **characterized in that** the rotor is also enclosed in the housing.

4. A wave-power unit as claimed in any one of claims 1-3, **characterized in that** the rotor is situated on the outside of the stator.

5. A wave-power unit as claimed in any one of claims 1-4, **characterized in that** the rotor is connected to a turning body, which turning body is connected to the movement transmitting means.

6. A wave-power unit as claimed in claim 5, **characterized in that** the turning body is arranged outside the housing.

7. A wave-power unit as claimed in claim 5 or claim 6, **characterized in that** it comprises a first gear mechanism effecting a gear change between the movements of the turning body and the rotor.

8. A wave-power unit as claimed in any one of claims 5-7, **characterized in that** the movement means (4) is secured by its upper end to the floating body (3) and by its lower end to the turning body (10) and in that at least the lower part of the movement transmitting means (4) consists of a component that can be rolled up, e.g. a cable.

9. A wave-power unit as claimed in any one of claims 5-8, **characterized in that** the turning body (10) and the rotor (17) are arranged on a common, substantially horizontal shaft (9).

10. A wave-power unit as claimed in any one of claims 5-9, **characterized in that** the turning body (10) has circular cross section and in that the diameter of the rotor (17) is larger than the turning body (10).

11. A wave-power unit as claimed in claim 4, **characterized in that** the movement transmitting means is secured by its upper end to the floating body and by its lower end to the rotor and in that at least the lower part of the movement transmitting means consists of a component that can be rolled up, e.g. a cable.

12. A wave-power unit as claimed in any one of claims 1-11, **characterized in that** it is provided with spring means (15) arranged to exert a torsional force on the rotor (10).

13. A wave-power unit as claimed in claim 12, **characterized in that** the spring rate of the spring means is adjustable.

14. A wave-power unit as claimed in any one of claims 1-13, **characterized in that** the housing (6, 8) comprises a base plate (8), which base plate is arranged to rest on the bed (1) of the sea/lake.

15. A wave-power unit as claimed in any one of claims 1-14, **characterized in that** the length of the movement transmitting means is adjustable.

16. A wave-power unit as claimed in any one of claims 1-15, **characterized in that** the housing is filled with a liquid.

17. A wave-power unit as claimed in any one of claims 1-16, **characterized in that** the housing is primarily made of concrete.

18. A wave-power unit as claimed in any one of claims 1-17, **characterized in that** the floating body is connected to a plurality of generators.

19. A wave-power unit as claimed in any one of claims 1-18, **characterized in that** the stator winding is connected to a rectifier, which rectifier is preferably arranged close to the generator below the surface of the water, preferably inside the housing.

20. A wave-power unit as claimed in any one of claims 1-19, **characterized in that** the generator is arranged to produce a voltage of varying frequency.

21. A wave-power unit as claimed in any one of claims 1-20, **characterized in that** the movement transmitting means comprises a second gear mechanism to effect a gear ratio of the vertical movement of the floating body.

22. A wave-power unit as claimed in any one of claims 1-21, **characterized in that** it comprises a free wheel arranged to convert oscillating rotary movement to unidirectional rotary movement.

23. A wave-power unit as claimed in any one of claims 1-22, **characterized in that** the stator winding consists of a cable comprising a current conductor (31), a first semi-conducting layer (32) surrounding the conductor, an insulating layer (33) of solid insulation surrounding the first semi-conducting layer (32), and a second semi-conducting layer (34) surrounding the insulating layer (33).

24. A wave-power plant comprising a plurality of wave-power units as claimed in any one of claims 1-23, **characterized in that** the stator winding of each wave-power unit is connected via a rectifier (22) to an inverter (23) which is common to a plurality of wave-power units, which inverter (23) is arranged to supply energy to an electric supply network.

25. A wave-power plant as claimed in claim 24, **characterized in that** at least one electric switchgear station is connected to the wave-power unit, which switchgear station comprises a watertight container housing switchgear components, which container is anchored in the sea bed.

26. A wave-power plant as claimed in claim 25, **characterized in that** a plurality of switchgear stations are connected to the wave-power unit, each switchgear station being connected to a number of wave-power units.

27. A wave-power plant as claimed in claim 25 or claim 26, **characterized in that** each switchgear station is connected to a receiving station arranged on land.

28. A wave-power plant as claimed in any one of claims 25-27, **characterized in that** at least one of the switchgear stations comprises a step-up transformer and/or an intermediate station comprising a step-up transformer.

29. A wave-power plant as claimed in any one of claims 25-28, **characterized in that** at least one of the switchgear stations and/or the intermediate station comprises a converter.

30. A wave-power plant as claimed in any one of claims 25-29, **characterized in that** at least one of the switchgear stations and/or the intermediate station comprises means for storing energy.

31. A wave-power plant as claimed in any one of claims 25-30, **characterized in that** at least one of the switchgear stations and/or the intermediate station comprises filtering means for filtering outgoing and/or incoming current and voltage.

32. A wave-power plant as claimed in any one of claims 25-31, **characterized in that** at least one of the switchgear stations and/or the intermediate station is filled with non-corrosive, buffered liquid.

33. A wave-power plant as claimed in any one of claims 24-32, **characterized in that** a filter and/or a transformer is/are arranged after the inverter.

34. A wave-power plant as claimed in claim 24, **characterized in that** the inverter, filter and/or transformer is/are arranged on land.

35. A wave-power plant as claimed in any one of claims 24-34, **characterized in that** each wave-power unit is connected to the inverter via a cable arranged on or close to the sea or lake bed.

36. The use of a wave-power unit as claimed in any one of claims 1-23 or a wave-power plant as claimed in any one of claims 24-35 for generating electric power.

37. A method of generating electric power by mechanically connecting a floating body to a rotating electric generator, **characterized in that** the mechanical movement transmitting means is arranged to transmit vertical movements of the floating body to rotary movements of the generator rotor.

38. A method as claimed in claim 37, **characterized in that** the method is utilized while making use of a wave-power unit as claimed in any one of claims 1-23.

39. A method as claimed in claim 38, **characterized in that** the spring means with adjustable spring rate is applied to exert a torsional force on the rotor and in that the spring means is adjusted so that resonance is obtained with the movement of the floating body that is estimated to occur for most of the time.

40. A method as claimed in any one of claims 37-39, **characterized in that** the energy generated is conducted to a switchgear station, the components of which are arranged in a watertight container, which container is anchored in the sea bed.

41. A method as claimed in claim 40, **characterized in that** the switchgear station is connected to a receiving station arranged on land.

42. A method as claimed in claim 41, **characterized in that** a plurality of switchgear stations are connected to a common intermediate station, which intermediate station is connected to the receiving station.

43. A method as claimed in any one of claims 40-42, **characterized in that** at least one of the switchgear stations and/or the receiving station is/are arranged below the surface of the water, preferably close to the sea bed.

44. A method as claimed in any one of claims 40-43, **characterized in that** voltage generated is step-up transformed in at least one of the switchgear stations and/or the intermediate station.

45. A method as claimed in any one of claims 40-44, **characterized in that** the outgoing voltage from at least one of the switchgear stations and/or from the intermediate station is alternating voltage.
